

REMARKS

The Examiner is thanked for withdrawal of various rejections and objections.

Interview Summary

Examiners Mabry and Desai are thanked for the courtesies extended during the telephonic Interview of July 9, 2009, and for holding the Interview in accord with an Examiner's training program. As the Examiners noted in the Interview Summary dated July 14, 2009 (Paper No. 20090709), variables X and Y were discussed in relation to the disclosure in the specification. The Examiners conveyed generally the subject matter regarding variables X and Y that they considered would be acceptable under 35 USC § 112, first paragraph. Further information regarding the discussion is provided within the subsequent remarks.

Claim Amendments

Claim 1 has been amended to recite that "X has an alkyl, alkylphenyl, alkylcycloalkyl, phenyl, or alkyl, alkylphenyl, or alkylcycloalkyl in which the alkyl group of the alkyl, alkylphenyl, or alkylcycloalkyl is interrupted by 1-3 hetero atoms selected from the group consisting of O and N, and the alkyl interrupted by said 1-3 hetero atoms optionally has from one to three hydroxy functional groups, and X further has at least one group including at least one hetero atom which is positively or negatively charged wherein said group is selected from the group consisting of a quaternary ammonium

group, a quaternary ammonium amine group, $-O-SO_3^-$, $-COO^-$, $-O-PO_3H^-$, $-O-PO_3^{-2}$, $-SO_3^-$, $-PO_3H^-$, and $-PO_3^{-2}$, and X has from 1 to 10 carbon atoms and from 1 to 10 hetero atoms." Support for the amendment is found in the specification at, for example, paragraphs 23–30; paragraphs 37-55; and Examples 1-5; and in original claims 1, 2, 3, 7, 10, and 11.^{1/} See *In re Gardner*, 177 USPQ 396, 397 (CCPA 1973) and MPEP §§ 608.01(0) and (I).

During the Interview, the Examiners acknowledged that alkyl, alkylphenyl, and alkylcycloalkyl would be acceptable under 35 U.S.C § 112, first paragraph. It is submitted that there is ample support for the scope of the presently amended claim, however. With respect to X as phenyl, support is found, for example, in the specification which discloses that "[p]referably X is an alkyl, *aryl*, arylalkyl or alkylcycloalkyl group..." (Paragraph 23, lines 11-12) (emphasis added.) Support is also found in the recitation of the "[p]referred compounds" of paragraph 37 of the specification (page 4, right column, the last three compounds, and page 5, left column, the first compound). Also, in Example 5, X is phenoxypropane sulfonic, which, in addition to the foregoing, would lead one skilled in the art to consider X as a phenyl group with at least one group including at least one hetero atom which is positively or negatively charged, as claimed, as being sufficiently disclosed.

During the Interview, the Examiners also acknowledged that an alkyl "interrupted by 1-3 hetero atoms selected from the group consisting of O and N atoms" would be acceptable under 35 U.S.C § 112, first paragraph. Support for the

^{1/} With respect to the present application, for ease of reference, we cite to the paragraph and page numbers as set forth in the published application (US 2007/0275090).

amendment is found, for example, in paragraph 25, lines 12-14; in numerous compounds of paragraph 37; Examples 1, 3, and 4; and original claim 15. (Id.) It is also noted that the language "the alkyl group ... is interrupted by 1-3 hetero atoms ..." indicates that a hetero atom may be between two carbon atoms of the alkyl, as for example in Examples 1, 3 and 4, or at the end of an alkyl group linking another group comprising X, for example, as in Example 5, where an alkyl is interrupted by an oxygen, which oxygen atom links the alkyl to the phenyl group.

The Examiners also indicated that specific groups that meet the recitation for variable X that it "has at least one group including at least one hetero atom which is positively or negatively charged" such as -COO^- , -OSO_3^- , and $\text{-OPO}_3\text{H}^-$, which are recited in original claim 10 (see also Examples 1 and 2, original claim 15, and paragraph 37), and a quaternary ammonium group as is recited in original claim 7 (see also Examples 3 and 4, original claim 15, and paragraph 37) would be acceptable under 35 U.S.C § 112, first paragraph. It was also discussed that additional groups are disclosed. Example 5, for example, includes the group -SO_3^- . The list of various groups disclosed in paragraph 25, which recites "a group -O-SO_3^- , -COO^- , $\text{-O-PO}_3\text{H}^-$, -O-PO_3^{2-} , -SO_3^- , $\text{-PO}_3\text{H}^-$, and -PO_3^{2-} " was discussed and acknowledged by the Examiners. Quaternary ammonium amine groups are also disclosed, for example, in original claim 15 and paragraph 37, the last two compounds of each. Support for the amendment is also found in paragraph 23, lines 17-31.

The presence of an optional hydroxy group was also discussed during the Interview. The Examiners did not object to its inclusion. Accordingly, the claim amendment recites that "the alkyl interrupted by said 1-3 hetero atoms optionally has

from one to three hydroxy functional groups....” Support for the amendment is found in the specification at, for example, paragraph 23, lines 5-7; paragraph 37, third compound; and Example 3.

Furthermore, claim 1 has been amended to recite that “X has from 1 to 10 carbon atoms and from 1 to 10 hetero atoms.” Support is found in the specification at, for example, paragraph 23, lines 1-7; paragraph 25, lines 12-16; paragraphs 37-38; and Examples 1-5. The Examiners also did not object to these amendments.

Claim 1 has also been amended to recite that “Y is a counterion selected from the group consisting of a quaternary ammonium ion, an alkali metal ion, an alkali earth metal ion, a triethanol ammonium ion, an aminomethylpropanol ion, a tris(tromethamine) ion, and a halogen ion.” Support for the amendment is found in the specification at, for example, paragraphs 31-32, and 37; paragraph 45, lines 3-6; paragraphs 37-38, and 98; and Examples 1-5; and in original claims 8 and 11. (Id.) During the Interview, the Examiners indicated that the subject matter of claim 11, which has been incorporated into claim 1 by amendment, would be acceptable under 35 U.S.C § 112, first paragraph. Various support noted above was also discussed.

In addition, claim 1 has been amended to replace “Compounds” with “A compound.” Claims 4-10, 12, 13 and 15 have been amended to replace “Compound” with “The compound.” Claim 16 has been amended to add “An” prior to “UV-A screening composition,” and claim 17 has been amended to add “The” prior to “UV-A screening composition.” These amendments place the claims in better form for US practice and do not change the scope of the claims in any way.

Claims 2, 3, and 11 are canceled, without prejudice.

Claim 4 has been amended to delete "contains" and to recite that X "has from 1 to 6 hetero atoms." Support for the amendment is found in the specification at, for example, paragraphs 23-30; 37-55; Examples 1-5; and in original claim 1.

Claim 5 is amended to depend from claim 1, and to recite that "the 1-10 hetero atoms are each selected from the group consisting of nitrogen, oxygen, sulfur and phosphor atoms." Support for the amendment is found in the specification at, for example, paragraph 25; paragraph 37; and Examples 1-5. Because the Examiner questioned the inclusion of sulfur and phosphor during the Interview, it is noted that the 1-10 hetero atoms comprise, if present, 1-3 hetero atoms selected from the group consisting of O and N, as noted by the Examiner, as well as hetero atoms in "the at least one group including at least one hetero atom which is positively or negatively charged."

Claim 8 has been amended to recite "a halogen ion". Support for the amendment is found in the specification at, for example, paragraphs 32-33; paragraph 45, lines 3-6; and Examples 3-4.

Claim 10 has been amended to add commas within the Markush grouping.

Claims 12 and 13 have been amended to delete the terms "residue" and "residues", respectively.

Claim 15 has been amended to add "which is," to place the claim in better grammatical form. Claim 15 is also amended to conform to claim 1 upon which it depends, to delete compounds in which R¹ and R² are not each a cyano group.

Withdrawn claims 18-21 have been canceled, without prejudice.

Claim 23 has been added to recite, "The compound according to claim 7, wherein the quaternary ammonium group is a pyridinyl." Support for the claim is found in the specification, for example, in paragraphs 53 and 55; and in Example 4.

Claim 24 has been added to recite, "The compound according to claim 7, wherein the quaternary ammonium group comprises a charged nitrogen which interrupts the alkyl group of the alkyl, alkylphenyl, or alkylcycloalkyl." Support for the claim is found in the specification, for example, in paragraphs 23, 25, and 37; Example 3; and original claim 15. (Id.)

Claim 25 has been added to recite a subset of compounds of claim 15. Support is found in the specification at, for example, paragraph 37; Examples 1-5; and in original claim 15.

No new matter has been added by any of the amendments.

Enablement Rejection

Claims 1-13 and 15-17 were rejected solely under 35 U.S.C. 112, 1st paragraph, as lacking enablement. (Paper No. 20090311 at 4.)

In making the rejection, the Examiner asserted that the application "is not enabled" with regard to the description of X and Y, as claimed in claim 1. (Id. at 4-5.)

The Examiner acknowledged, however, that "[t]he Applicant is enabled for [X where X is] C1-C5 alkyl groups which are interrupted by 1-2 heteroatoms wherein

heteroatoms are N, O, S and P[,] and [Y] where [Y] is K, Na, halogen, Li but is not enabled for the entire scope as claimed."^{2/} (Id. at 5.)

The Examiner also asserted that the language "alkyl, alkylaryl and alkylcycloalkyl groups optionally containing 1-10 heteroatoms" as used in claim 1 with regard to substituent X "is not the proper term to describe an alkyl group..." (Id.)

With regard to substituent Y, the Examiner asserted that the specification "is not enabled for Y being every counter ion that chemically exists. Examiner described above which counterions [are] enabled." (Id.)

To forward prosecution in the present application, claim 1 has been amended to recite, "X has an alkyl, alkylphenyl, alkylcycloalkyl, phenyl, or alkyl, alkylphenyl, or alkylcycloalkyl in which the alkyl group of the alkyl, alkylphenyl, or alkylcycloalkyl is interrupted by 1-3 hetero atoms selected from the group consisting of O and N, and the alkyl interrupted by said 1-3 hetero atoms optionally has from one to three hydroxy functional groups, and X further has at least one group including at least one hetero atom which is positively or negatively charged wherein said group is selected from the group consisting of a quaternary ammonium group, a quaternary ammonium amine group, $-O-SO_3^-$, $-COO^-$, $-O-PO_3H^-$, $-O-PO_3^{-2}$, $-SO_3^-$, $-PO_3H^-$, and $-PO_3^{-2}$, and X has from 1 to 10 carbon atoms and from 1 to 10 hetero atoms." Claim 1 has also been amended to recite that "Y is a counterion selected from the group consisting of a quaternary ammonium ion, an alkali metal ion, an alkali earth metal ion, a triethanol

^{2/} We note that the rejection as written does not correspond to the claim, and for that reason it is unclear and ambiguous. With a view toward furthering prosecution, we have based our response on what we believe the Examiner intended. If our assumptions, which are set forth in brackets, are incorrect, the Examiner is requested to reissue the Office Action with an unambiguous rejection.

ammonium ion, an aminomethylpropanol ion, a tris(tromethamine) ion, and a halogen ion."

In addition, we note that it is the Examiner's burden to demonstrate that a specification is not sufficiently enabling. *In re Marzocchi*, 169 USPQ 367, 369 (CCPA 1971). To carry this burden, the Examiner must identify and clearly articulate the factual bases and supporting evidence that allegedly establish that undue experimentation would be required to carry out the claimed invention. *Id.* at 370. It is well established that claims must be separately analyzed. *Ex parte Jochim*, 11 USPQ2d 561 (BPAI 1988).

In short, it is the Examiner's burden to set forth a prima facie case by establishing a reasonable basis to question the enablement provided for the claimed invention. See *In re Wright*, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988); *In re Strahilevitz*, 668 F.2d 1229, 1232, 212 USPQ 561, 563 (CCPA 1982); *In re Marzocchi*, 439 F.2d 220, 223-24, 169 USPQ 367, 369-70 (CCPA 1971).

Although not explicitly set forth in the statute, enablement may be found where some experimentation (even a considerable amount) is required, so long as the experimentation is not "undue." *Ex parte Forman*, 230 USPQ 546, 547 (BPAI 1986); see also *In re Colianni*, 561 F.2d 220, 224, 195 USPQ 150, 153 (J. Miller concurring) (CCPA 1977); and *In re Rainer*, 347 F.2d 574, 577, 146 USPQ 218, 220-221 (CCPA 1965). The Federal Circuit, adopting the analysis set forth in *Forman*, has enumerated several factors which may be considered in determining whether claims require that one skilled in the art perform undue experimentation in order to practice the claimed subject

matter: breadth of the claims; predictability or unpredictability of the art; relative skill of those in the art; state of the prior art; nature of the invention; working examples; amount of guidance; and quantity of experimentation necessary. *Wands*, 858 F.2d at 737, 8 USPQ2d at 1404. These factors are merely illustrative, not mandatory; they provide a general framework for analysis. *Enzo Biochem v. Calgene Inc.*, 188 F.3d 1362, 1371, 52 USPQ2d 1129, 1136 (Fed. Cir. 1999); *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1213, 18 USPQ2d 1016, 1027 (Fed. Cir.), *cert. denied*, 502 U.S. 856 (1991).

It is respectfully submitted that the specification is enabled for more than substituent X having "C1-C5 alkyl groups which are interrupted by 1-2 heteroatoms...", as asserted by the Examiner. (Paper No. 20090311 at 5.) Furthermore, presently amended claim 1 is sufficiently enabled with respect to variable X. The specification supports this language as noted above; see the specification, for example, at paragraph 23; and in paragraph 25, lines 7-18.

In particular, with regard to the recitation that "X has from 1 to 10 carbon atoms", for instance, Example 3 has 7 carbon atoms in substituent X. Also, Examples 4 and 5 each have 9 carbon atoms. Many additional examples of compounds supporting the presently claimed substituent X can be found, *e.g.*, in paragraph 37 of the specification. For instance, in paragraph 37, page 4, right column, the fifth compound has ten carbon atoms. (Note also the presence of three functional hydroxy groups in this compound.) As noted above, the Examiners did not object to the number of carbon atoms as recited in amended claim 1 for variable X during the Interview.

With regard to the number of hetero atoms in the recitation that "X has ... from 1 to 10 hetero atoms," for instance, as well as the recitation that when "the alkyl

group of the alkyl, alkylphenyl, or alkylcycloalkyl is interrupted by 1-3 hetero atoms selected from the group consisting of O and N," for example, Example 1 has one oxygen atom that interrupts the alkyl chain, and a terminal phosphate residue, $-O-PO_3H^-$, for a total of 6 hetero atoms. Example 2 does not have any hetero atoms which interrupt the chain, but there is a terminal $-O-SO_3^-$ group, for a total of 5 hetero atoms. Example 3 has an oxygen and a positively charged nitrogen (as part of a quaternary ammonium group) which interrupt the chain, for a total of 2 hetero atoms. (Note also the presence of a functional hydroxyl group.) Example 4 has an oxygen which interrupts the alkyl chain, and a positively charged nitrogen atom (as part of a quaternary ammonium group which comprises a pyridine ring), for a total of two hetero atoms. Example 5 has an oxygen which interrupts the alkyl chain and which links the aromatic hydrocarbon ring and the alkyl chain, and a terminal $-SO_3^-$, for a total of 5 hetero atoms. In paragraph 37, for instance, we note that in the left column of page 4, the third structure has a positively charged nitrogen (as part of a quaternary ammonium group) and two oxygen atoms, all three of which interrupt the alkyl chain. (A functional hydroxy group is also present.) See also page 5, left column, third compound, in which three oxygen atoms each interrupt the alkyl chain, and a terminal $-OSO_3^-$ is present, totaling 8 hetero atoms in variable X. As noted above, the Examiners did not object to these numbers of hetero atoms as recited in amended claim 1 for variable X during the Interview.

With regard to substituent Y of claim 1, it is respectfully submitted that the amended substituent Y derives sufficient enabling support from the specification. The Examiner is referred to the support from the specification noted above for substituent Y

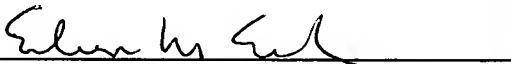
of amended claim 1, which was discussed during the Interview. As noted above, the Examiners indicated that the subject matter of claim 11, which has been incorporated into claim 1 by amendment, would be acceptable under 35 U.S.C § 112, first paragraph.

It is respectfully submitted that the specification provides ample information regarding how to make and use the presently claimed compounds. And, one skilled in the art would understand how to make and use the presently claimed compounds, in view of the specification. Moreover, the Examiner has provided no evidence or explanation as to why the claims as amended would not be enabled.

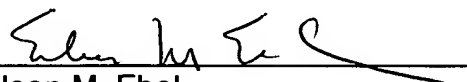
In view of the foregoing, it is submitted that the rejection has been rendered moot. Reconsideration and withdrawal of the rejection are requested.

For the reasons set forth above, entry of the amendments, withdrawal of the rejections, and allowance of the claims are respectfully requested. If the Examiner has any questions about this paper, please contact the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Mail Stop RCE, Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 17, 2009.


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